

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/517,819	LEE, SUK HUN	
	<b>Examiner</b>	<b>Art Unit</b>	
	Brian Kunzer	2814	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to October 2<sup>nd</sup>, 2006.
2. ☒ The allowed claim(s) is/are 1-3, 5, 7-18, 20-26 and 36-39.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
|---|--|

  
**ANH D. MAI**  
**PRIMARY EXAMINER**

***Allowable Subject Matter***

1. Claim 1-3, 5, 7-18, 20-26, and 36-39 are allowed.

**REASONS FOR ALLOWANCE**

With respect to claims 1, 7, 22, and 36, all claims containing similar subject matter, the prior record of art fails to teach or suggest a three layered quantum well active layer structure - low mole In-doped  $\text{In}_x\text{Ga}_{1-x}\text{N}$  layer/  $\text{In}_y\text{Ga}_{1-y}\text{N}$  well layer /  $\text{In}_z\text{Ga}_{1-z}\text{N}$  barrier layer – wherein the low mole In-doped  $\text{In}_x\text{Ga}_{1-x}\text{N}$  layer has an In content smaller than that of the  $\text{In}_z\text{Ga}_{1-z}\text{N}$  barrier layer.

With respect to claims 8, 23, and 37, all claims containing similar subject matter, the prior record of art fails to teach or suggest a three layered quantum well active layer structure - low mole In-doped  $\text{In}_x\text{Ga}_{1-x}\text{N}$  layer/  $\text{In}_y\text{Ga}_{1-y}\text{N}$  well layer /  $\text{In}_z\text{Ga}_{1-z}\text{N}$  barrier layer – wherein the low mole In-doped  $\text{In}_x\text{Ga}_{1-x}\text{N}$  layer, the  $\text{In}_y\text{Ga}_{1-y}\text{N}$  well layer and the  $\text{In}_z\text{Ga}_{1-z}\text{N}$  barrier layer have an In content expressed as  $0 < x < 0.05$ ,  $0 < y < 0.3$  and  $0 < z < 0.1$ , respectively.

With respect to claim 12, the prior record of art fails to show a buffer layer formed above the substrate; a first In doped GaN layer formed above the buffer layer; a  $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$  super lattice structure layer formed above the first In-doped GaN layer; and a first electrode contact layer formed above the  $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$  super lattice structure layer; *wherein the first In-doped GaN layer and the  $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$  super lattice structure layer formed thereon are repeatedly layered in plurality.* [emphasis added]

With respect to claims 13 and 16, both claims containing similar subject matter, the prior record of art fails to teach or suggest a first electrode contact layer above a first In-doped GaN

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wherein a  $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$  super lattice structure layer is also formed between the first In-doped GaN layer and the first electrode contact layer.

With respect to claim 17, the prior record of art fails to teach or suggest a first electrode contact layer above a first In-doped GaN wherein an  $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$  super lattice structure and an undoped GaN layer is formed between the first In-doped GaN layer and the first electrode contact layer.

### *Conclusion*

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Kunzer whose telephone number is (571) 272-5054. The examiner can normally be reached on Monday-Friday 8:00-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BK  
10/23/06



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**PRIMARY EXAMINER**